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WTIA National Diffusion Networks  
Project (NDNP) funded by the  
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**SUCCESS STORY NUMBER RT05:** HEAT STRAIGHTENING REPAIR OF DAMAGED STEEL BRIDGES – *Department for Transport Energy and Infrastructure - SA, trials US software to help keep the traffic flowing*

## Background

During 2005 Mr Krishna Verma, Principal Bridge Engineer, US Federal Highway Administration (FHWA) was brought to Australia by WTIA as an initiative of the Road Transport Industry Sectoral Project (ISP). As well as presenting a series of Technology Demonstrations to industry around Australia, Mr Verma and his colleagues held high-level meetings with each of the state road authorities that are members of the ISP.

## Department for Transport Energy and Infrastructure, SA

In South Australia, a meeting was held with officers from the Pavements and Structures Section (PAS) of the Department for Transport, Energy and Infrastructure (DTEI).

Of particular interest was the experience in the US with the restoration and repair of collision-damaged structural bridges. It is not uncommon for large road transport vehicles in particular, to hit over-pass bridges and damage the steel girders of these structures.

Adelaide is particularly dependent upon road transportation, and with many overpass structures on their network, incidents do occur.

## Repair of damaged steel bridges

The discussions centred around the techniques used in the US, and a 2 CD-ROM tool which was provided to PAS and other members of the Road Transport ISP by the FHWA. This interactive guide details the principles and practice of heat straightening to bridge engineers, inspectors and fabricators.

The CDs give interactive information on the management, design and techniques for the repair of steel bridges, with full technical instructions and explanation. A case study of a heat-straightening project on a bridge

in Lake Charles, Louisiana, USA illustrates the approach and procedures.

## Outcomes

Since Mr Verma's visit, the Pavements and Structures Section of DTEI have been working with the CDs to explore the full potential for the department. On-going correspondence with the US has allowed the Australian team to gain further insight into the application of the software to local situations.

As an example of where the new technology could be applied, in 2001 the Moore Road Bridge over the Southern Expressway near Adelaide was impacted by an earthmoving truck with its tray left in the up position. The pictures below show the bridge and the repair work that was successfully carried out using heat straightening procedures.



Officers from the Department for Transport Energy and Infrastructure commented that, although the bridge was successfully repaired at the time, the FHWA software could contribute significantly to this type of work in the future. The information gained through the visiting experts is currently being integrated as appropriate into PAS work procedures.

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